

ABSTRACT

A solar cell including a light-absorption layer of a compound semiconductor with a chalcopyrite crystal structure and having excellent characteristics such as conversion efficiency is provided. The solar cell includes a first electrode layer, a second electrode layer, a p-type semiconductor layer interposed between the first electrode layer and the second electrode layer, and an n-type semiconductor layer interposed between the p-type semiconductor layer and the second electrode layer. The p-type semiconductor layer includes a compound semiconductor containing a group Ib element, a group IIIb element and a group VI element and having a chalcopyrite structure. The bandgap of the p-type semiconductor layer increases from the n-type semiconductor layer side to the first electrode layer side monotonically. The bandgap of the p-type semiconductor layer on the main surface at the n-type semiconductor layer side is at least 1.08 eV, and the bandgap of the p-type semiconductor layer on the main surface at the first electrode layer side is at least 1.17 eV. In the p-type semiconductor layer, a first region at the n-type semiconductor layer side and a second region at the first electrode layer side are different from each other in bandgap increase rate in a direction of thickness of the p-type semiconductor layer.